

REMARKS

Reconsideration of the above-identified application is respectfully requested.

Claim 17 remains in the application. The claim has been amended to indicate that the bioactive peptide composition enhances the growth of animals and fish, a function which distinguishes the composition from prior art references, and further, it has been amended to positively state that there is enzymatic hydrolysis of a fish protein by pepsin derived from the stomach of Atlantic cod. These amendments clearly distinguish the claim from the prior art references.

Claim 17 has been rejected under 35 USC §102(b) as being anticipated by the Fujimaki et al. reference, US Patent No. 4,016,147. The Examiner believes that the Fujimaki et al. reference discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as a hydrolytic enzyme. The Fujimaki et al. reference teaches the preparation of a low phenylalanine plastein and not a bioactive peptide composition that enhances the growth of animals and fish. Enzymes from the stomach of Atlantic cod are not shown to be hydrolytic enzymes in the process of the Fujimaki et al. reference. Indeed, the Fujimaki et al. reference uses endopeptidase to form a hydrolyzate from a protein source, an exopeptidase plus gel filtration to form an aromatic amino acid fraction and an aromatic amino acid free peptides fraction. The composition claim of the present invention does not contain elements or ingredients which are obtained by such a process, but contains specific ingredients or elements which are not disclosed in the Fujimaki et al. reference, mainly pepsin obtained from the stomach of Atlantic cod to form a bioactive peptide composition having less than 100 amino acid units and having a molecular weight below

10,000. Clearly, the teachings of the Fujimaki et al. reference do not anticipate the composition of Claim 17.

The Yamashita et al. reference is being applied to Claim 17 by the Examiner to reject the claim under 35 USC §102(b). The Examiner believes that the Yamashita et al. reference discloses a bioactive composition produced by hydrolysis of a protein source at a controlled acidic pH with pepsin from fish as a hydrolytic enzyme. The Yamashita et al. reference describes the preparation of a peptide low phenylalanine high-tyrosine food for curing the phenylketonuria. Diverse process steps are used to obtain the product, all of which are different from steps needed to obtain and define the ingredients and elements of Claim 17. The Examiner is making general statements from the description of the Yamashita et al. reference and is applying the general information to the claimed invention. It is basic biochemistry that proteins are degraded in the presence of proteolytic enzymes (pepsins) to peptides and free amino acids. This proteolytic process may proceed under all possible conditions within the principal framework of biological activity by pH 1-12, temperature 0-90°C, salt 0-23%, etc., but never by the same proteolytic enzyme. The great number of proteolytic enzymes in nature attack proteins in different ways and under widely different conditions within the framework referred to above. The resultant product mix, despite always being a mixture of peptides and amino acids, will accordingly differ with process conditions, enzymatic activity and time of enzymatic action. Sometimes bioactive or immune stimulating peptides may be formed, under other conditions merely with bioavailable amino acids; other times different results will occur. Moreover, a proteolytic enzyme may cause notable changes in the molecular/3-dimensional structure of a protein without degrading

it to peptides. Basically, the disclosures of the Fujimaki et al. reference and the Yamashita et al. reference are not specific to Applicant's claimed composition wherein pepsin from the stomach of cod is described as an element or ingredient in the composition for enhancing growth in animals.

Claim 17 is being rejected under 35 USC §103(a) as being unpatentable over the Fujimaki et al. reference or the Yamashita et al. reference in view of the Gildberg et al. reference. The Fujimaki et al. and Yamashita et al. references have been discussed above. Both references fail to teach the use of an enzymatic hydrolysis of a fish protein source with a pepsin enzyme derived from the stomach of Atlantic cod. The Examiner now asserts the Gildberg et al. reference to teach the isolation of acid peptide fractions from a fish protein hydrolyzate from the stomach of Atlantic cod, in which the isolated or separated acid peptide fractions were used *in vitro* simulatory experiments with head kidney leukocytes from Atlantic salmon. The process described by Gildberg et al. does not describe the process for making ingredients used in the composition claimed. Therefore, the ingredients and the products described in the claimed invention are not disclosed or suggested by the teachings of the Gildberg et al. reference. The Gildberg et al. reference does not describe any process conditions for making the bioactive immune simulating peptides that they studied. Thus, there is no suggestion for the use of pepsin from the stomach of Atlantic cod in the composition presently claimed, a composition for enhancing the growth of warm blooded animals and fish.

The Gildberg et al. reference taken singly or in combination with the Fujimaki et al. reference and the Yamashita et al. references do not teach or suggest the claimed composition.

It is respectfully submitted that amended Claim 17 meets the requirements of 35 USC §§102 and 103. An early notice of allowance of the above-identified application is respectfully requested.

Respectfully submitted,

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A handwritten signature in cursive script, appearing to read "W. Dennis Drehkoff", written over a horizontal line.

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MARKED VERSION OF CLAIMS

17. (currently amended) A bioactive peptide composition that enhances the growth of animals and fish consisting of a mixture of peptides having an aromatic amino acid in the N-terminal position, selected from the group consisting of tyrosine, phenylalanine and arginine, produced by enzymatic hydrolysis of a fish protein source ~~preferably from fish~~ at a pH in the range of 1-6 with pepsin ~~obtained~~ derived from fish, ~~preferably from~~ the stomach of Atlantic cod as the hydrolytic enzyme, said bioactive peptide composition consisting of less than 100 amino acid units and having a molecular weight below 10,000 kd.